UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/466,921	06/06/1995	MARC ALIZON	03459.0008-0	3572

22852 7590 03/12/2004

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
1300 I STREET, NW
WASHINGTON, DC 20005

EXAMINER	
PARKIN, JEFFREY S	

ART UNIT	PAPER NUMBER
1648	

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER OF
PATENTS AND TRADEMARKS
Washington, D.C. 20231

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Paper No.: 42

Application Number: 08/466,921
Filing Date: 06 June, 1995
Appellants: Alizon *et al.*

Salvatore J. Arrigo
For Appellant

SUPPLEMENTAL EXAMINER'S ANSWER

Pursuant to the Remand under 37 C.F.R. § 1.193(b)(1) by the Board of Patent Appeals and Interferences on 27 June, 2002, a supplemental Examiner's Answer is set forth below. No new grounds of rejection or objection are set forth in this supplemental response.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims do not stand or fall together and provides reasons as set forth in 37 C.F.R. § 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

No prior art is relied upon by the Examiner in the rejection of claims under appeal.

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 68 and 69 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As previously set forth in Paper No. 29, the reference to "amplified" copies of HIV-1 DNA fragments is vague and indefinite. The disclosure fails to provide an adequate definition of this phrase. This phrase is confusing since the precise nature of the amplification is not clearly set forth. For instance, it is not readily manifest if the claims are directed toward the amplification and plaque purification of a lambda phage clone containing an HIV-1 insert, PCR amplified HIV-1 fragments (which are clearly not supported by the disclosure), or some other form of amplified DNA. Moreover, Appellants have failed to provide any literature at the time of filing providing a suitable definition. Accordingly, the skilled artisan would not be able to ascertain the precise metes and bounds of the claimed invention.

The Board has requested that both the Examiner and Appellants reconsider the rejection of claims 62-73 in view of the *University of California* v. *Eli Lilly and Co.*, 119 F.3d 1559, 43 U.S.P.Q.2d 1398 (Fed. Cir.), *cert. denied*, 523 U.S. 1089 (1998)(*Eli Lilly*) and *Enzo Biochem, Inc.*, v. *Gen-Probe, Inc.*, 285 F.3d 1013, 62 U.S.P.Q.2d 1289 (Fed. Cir. 2002). The Board is reminded that the decision set forth in the latter case was vacated and withdrawn in a subsequent decision. *Enzo Biochem, Inc.*, v. *Gen-Probe, Inc.*, 63 U.S.P.Q.2d 1609 (Fed. Cir. 2002). Moreover, contrary to the

Board's assertion, the Examiner is quite familiar with the case law pertaining to the written description requirement under 35 U.S.C. § 112, first paragraph. However, the Examiner is not aware of any legal requirement stipulating that each and every potentially relevant decision must be explicitly cited and discussed in the Examiner's Answer. Nevertheless, the Examiner will consider this and other decisions where deemed germane to the rejection of the claims.

As previously set forth, claims 62-73 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. *In re Rasmussen*, 650 F.2d 1212, 211 U.S.P.Q. 323 (C.C.P.A. 1981). *In re Wertheim*, 541 F.2d 257, 191 U.S.P.Q. 90 (C.C.P.A. 1976). The claims are directed toward purified HIV-1 DNA fragments, cloned HIV-1 DNA fragments, double-stranded HIV-1 DNA fragments, amplified HIV-1 DNA fragments, and vectors and transformed host cells containing said fragments. The claim limitations stipulate that said fragments hybridize to HIV-1 genomic DNAs under non-stringent hybridization conditions comprising 20% formamide, 8X SSC, at a temperature 37°C, followed by washing conditions of 2X SSC, 0.1% SDS, at a temperature 37°C. Thus, the claimed DNAs are defined solely by functional language; specific nucleotide sequences or fragments derived from specific LAV clones are not present in the claim language.

As previously noted, although the disclosure describes similar hybridization conditions to those claimed by applicants, these conditions were discussed in reference to hybridization assays performed between three isolated LAV cDNA clones (e.g., λJ19, λJ27, and λJ81) and cloned HTLV-II DNA (see pages 11 and 12 of the

disclosure). Thus, the purpose of this hybridization assay was to assess the genetic relatedness of the recently identified LAV cDNA clones to that of other known retroviruses (e.g., HTLV-II). Moreover, the claims encompass an exceedingly large genus of nucleic acids encompassing small fragments from 10-15 nt to full-length proviral genomes (~10 kb). However, the disclosure fails to describe any other nucleic acids with the exception of those specific λJ19, λJ27, and λJ81 restriction fragments provided. The disclosure does **not** provide restriction maps or nucleotide sequences from any other HIV-1 isolate. The disclosure does **not** describe hybridization assays involving λJ19 restriction fragments and other HIV-1 clones. Moreover, the disclosure **fails** to describe the preparation of amplified DNA fragments. Accordingly, the skilled artisan, upon perusal of the specification, would not reach the conclusion that applicants' contemplated isolating and purifying other HIV-1 fragments that hybridize under the precise conditions claimed. Accordingly, applicants have not met their burden pertaining to this aspect of § 112. See also *Bigham* v. *Godtfredsen*, 857 F.2d 1415, 8 U.S.P.Q.2d 1266 (Fed. Cir. 1988), wherein the court concluded that the disclosure of an earlier compound was insufficient to provide an adequate written description for later claimed variants of this compound.

Moreover, additional legal precedence clearly dictates that conception of a chemical compound (e.g., a DNA molecule) is not achieved until reduction to practice has occurred (*Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 U.S.P.Q.2d 1016 (C.A.F.C. 1991); *Fiers v. Revel*, 25 U.S.P.Q.2d 1601 (C.A.F.C. 1993); *In re Bell*, 26 U.S.P.Q.2d 1529 (C.A.F.C. 1993); *In re Deuel*, 34 U.S.P.Q.2d 1210 (C.A.F.C. 1995); *University of California* v. *Eli Lilly*, 119 F.3d 1559, 43 U.S.P.Q.2d 1398 (Fed. Cir. 1997); *Enzo Biochem, Inc.* v.

Gen-Probe, Inc., 63 U.S.P.Q.2d 1609 (C.A.F.C. 2002)). In *Amgen, Inc.*, the court ruled that:

> Conception of chemical compound requires that inventor be able to define compound so as to distinguish it from other materials, and to describe how to obtain it, rather than simply defining it solely by its principal biological property; thus, when inventor of gene, which is chemical compound albeit complex one, is unable to envision detailed constitution of gene so as to distinguish it from other materials, as well as method for obtaining it, conception is not achieved until reduction to practice has occurred, and until after gene has been isolated.

The court in *Eli Lilly* further elaborated on this point and concluded that:

> An adequate written description of a DNA, such as the cDNA of the recombinant plasmids and microorganisms of the '525 patent, "requires precise definition, such as by structure, formula, chemical name, or physical properties," not a mere wish or plan for obtaining the claimed chemical invention. *Fiers* v. *Revel.*, 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). Accordingly, "an adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself." *Id.* at 1170, 25 USPQ2d at 1606.

The significance of conception and reduction to practice was further addressed by the court in *Fiers* where it was emphasized that:

> Conception is question of law, reviewed de novo on appeal, and if inventor is unable to envision detailed chemical structure of DNA sequence coding for specific protein, as well as method of obtaining it, then conception is not achieved until reduction to practice has occurred, that is, until after gene has been isolated; thus, regardless of complexity or simplicity of method of isolation employed, conception of DNA sequence, like conception of any chemical substance, requires definition of that substance other than by its functional utility.

Finally, the court noted in *Enzo Biochem* that the written description requirement can be met "by showing that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics ... i.e., complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics." Thus, it appears that adequate written support for a large genus of nucleic acids requires significant structural information.

In the instant application, applicants have only identified a small number of LAV sub-genomic and genomic clones. Preliminary characterization of the clones was performed by subjecting them to restriction mapping. However, **the disclosure does not provide any detailed structural information for any given LAV sub-genomic or genomic clone.** Furthermore, the disclosure does not provide any detailed structural information pertaining to any other HIV-1 isolate. Thus, the skilled cannot readily envisage or ascertain the nucleotide sequence of any given hybridizing fragment. Since the DNA fragments are defined solely in terms of functional language (i.e., hybridizing under low-stringency conditions), these limitations clearly fail to impart any further defining structural criteria to said fragments. It is readily manifest that applicants are attempting to claim nucleic acid fragments that were clearly never in their possession.

(11) Response to Argument

Appellants' arguments pertaining to the rejection of claims 68 and 69 under 35 U.S.C. § 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, were fully addressed in the grounds for rejection set forth *supra*. It is again noted that the disclosure fails to define this term and that Appellants have failed to provide any publications that provide a clear and concise explanation of the term as it is applied in the art.

Appellants' arguments pertaining to the rejection of claims 62-73 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, will be addressed as follows:

Contrary to Appellants' arguments, the disclosure fails to describe the isolation and purification of HIV-1 DNA fragments that hybridize to HIV-1 genomic DNA under the recited hybridization conditions. The only hybridization conditions provided in the disclosure were provided in reference to hybridization assays performed between three isolated LAV cDNA clones (e.g., λJ19, λJ27, and λJ81) and cloned HTLV-II DNA (see pages 11 and 12 of the disclosure). The purpose of this hybridization assay was to assess the genetic relatedness of the recently identified LAV cDNA clones to that of other known retroviruses (e.g., HTLV-II). Interestingly, the disclosure states (see p. 11, lines 31-34) that under the hybridization conditions Appellants are attempting to claim that "no hybridization was detected after two days exposure at -70°C using an intensifying screen." Thus, these hybridization conditions were clearly described in reference to a comparative assay to assess the genetic relatedness of the full-length clones to other known human retroviruses. These hybridization conditions

were not employed as further defining criteria to identify other suitable HIV-1 fragments that would hybridize with any HIV-1 genomic DNA.

Moreover, Appellants reliance upon pages 10 and 11 of the disclosure for support is also erroneous. The passages relied upon fail to disclose the precise hybridization conditions now being claimed. The passage relied upon demonstrates that λJ19 and λJ81 appear to be closely related to each other as ascertained by Southern blotting. Interestingly, this assay was performed under "stringent hybridization and washing conditions". Stringent hybridization conditions are often associated with high temperatures and low salt in both the hybridization reaction and washing conditions. However, the claimed invention recites low stringency conditions which would not be conducive to the identification of HIV-1-specific probes or fragments.

Appellants further suggest that the Office has failed to set forth a *prima facie* basis for the rejection and fails to explain why the skilled artisan would reach the same conclusion as the Examiner regarding the lack of written description for the claimed compounds. A *prima facie* case was already clearly set forth in the last Office action (see Paper No. 29) and *supra*. Appellants are reminded that the claims encompass an exceedingly large genus of nucleic acids encompassing small fragments from 10-15 nt to full-length proviral genomes (~10 kb). Perusal of the disclosure suggests that Appellants were in possession of what appear to be three full-length proviral clones (e.g., λJ19, λJ27, and λJ81) and three smaller clones (e.g., pLAV13, pLAV82, and pLAV75) corresponding to the R and U3 regions of the long terminal repeat (LTR). Page 4 of the specification and Figure 2 provide further guidance pertaining to a preliminary restriction map of the full-length clones. Thus, the skilled artisan would reasonably conclude

that Appellants were in possession of these DNAs. However, nothing in the disclosure suggests that Appellants contemplated making and using HIV-1 DNA fragments with the recited properties. The disclosure fails to provide a clear description of those criteria to be employed in identifying other suitable HIV-1 fragments. The disclosure describes the construction of a cDNA library (pages 5 and 6), the identification and preliminary restriction analysis of what appear to be HIV-1/LAV-specific cDNA clones (pages 7-11), and a comparative assay involving the identified full-length clones and other known retroviruses (e.g., HTLV-I, -II, Visna) (pages 11-12). However, once again, the disclosure fails to set forth any specific guidance for the identification, isolation, and characterization of purified DNA fragments under the recited hybridization conditions. The disclosure also fails to describe the preparation of amplified DNA fragments. Accordingly, the skilled artisan, upon perusal of the specification, would not reach the conclusion that applicants' contemplated isolating and purifying other HIV-1 fragments that hybridize under the precise conditions claimed. Accordingly, applicants have not met their burden pertaining to this aspect of § 112. See also *Bigham* v. *Godtfredsen*, 857 F.2d 1415, 8 U.S.P.Q.2d 1266 (Fed. Cir. 1988), wherein the court concluded that the disclosure of an earlier compound was insufficient to provide an adequate written description for later claimed variants of this compound.

Appellants assert that they were in possession of what appear to be two-full length proviral molecular clones of LAV (or HIV-1) designated λ-J19 and λ-J81. The Examiner does not dispute this assertion. Appellants also assert that they were in possession of specific LAV restriction fragments. The Examiner does not dispute this finding either but would like to emphasize that the claimed invention is not limited to any given restriction fragment.

The Examiner does not concur with Appellants' assessment that they were in possession of amplified copies of DNA. Amplified could reasonably be construed by the skilled artisan as referencing PCR-amplified copies of DNA. For instance, a specific segment of the HIV-1 genome could be amplified using an oligonucleotide primer pair. However, no such support exists for amplified DNAs anywhere in the specification. Appellants' reliance on page 12 of the disclosure is inappropriate and insufficient. The passage relied upon refers to cloned probes that can be made from a DNA fragment described in the specification (e.g., LAV 13). However, this section fails to set forth any clear and concise steps for amplifying DNA fragments with the recited characteristics.

For the above reasons, it is believed that the rejections should be sustained.

(12) Allowable Subject Matter

The Board's request that the Examiner reconsider the patentability of claims 39-52, 60, and 61 in view of *Eli Lilly* and *Enzo Biochem* is rather abstruse. The Examiner is quite familiar with these decisions as set forth *supra*. Apparently the Board is suggesting that the allowed claims fail to receive proper written support under 35 U.S.C. § 112, first paragraph, based upon said decisions. The Examiner finds this position clearly untenable in view of the teachings of the specification. The allowed claims are directed toward specific purified LAV λJ19 DNA restriction fragments. The disclosure unambiguously describes the cloning, isolation, preliminary characterization, and restriction mapping of a LAV molecular clone designated λJ19 (see Figure 2, pp. 2, 4, 5, and 9). The clone was clearly deposited at the Collection Nationale des Cultures de Micro-organismes (C.N.C.M.) of the

INSTITUT PASTEUR under Nr. I-338 (see p. 14). The disclosure clearly states that said fragments should prove useful as probes and diagnostic reagents see pp. 12 and 13). In addition pages 2, 4, 5, and Figure 2 clearly set forth specific restriction sites within the LAV genome. Thus the skilled artisan, upon perusal of the disclosure, would reasonably conclude that applicants were clearly in possession of the claimed restriction fragments at the time of filing. Accordingly, claims 39-52, 60, and 61, are free of the prior art and meet all of the requirements set forth under 35 U.S.C. § 112, first paragraph, and are allowable.

Respectfully submitted,

Jeffrey S. Parkin, Ph.D.
Patent Examiner, 1648

James C. Housel
Supervisory Patent Examiner, 1648

Conferee

07 January, 2004

LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600